

AMENDMENTS TO THE CLAIMS

This Listing of Claims will replace all prior versions and listings of claims in this application.

Please cancel claim 4 without prejudice or disclaimer.

Listing of Claims:

1. (Currently Amended) A method for producing a polymer composition containing a filler comprising simultaneously spraying and drying a liquid containing a polymer component and a liquid containing a filler under an atmosphere of a shock wave generated from pulse combustion, wherein the polymer composition before drying has a viscosity at 25°C of 3000 mPa·s or less, wherein the polymer is ~~at least~~ one member selected from the group consisting of NR, BR and SBR and, wherein the filler is at least one filler selected from the group consisting of carbon black, silica, water-glass, colloidal silica, clay and calcium carbonate, whereby the work or heat efficiency of the production of the polymer from the latex thereof containing the specified filler is improved, without causing heat degradation or gelling of the polymer.

2. (Original) A method for producing a polymer composition as claimed in claim 1, further comprising mixing the filler or filler-containing liquid with the liquid containing said polymer component, before spraying, and then spraying it under an atmosphere of a shock wave generated from pulse combustion.

3. (Previously Presented) A method for producing a polymer composition as claimed in claim 1, wherein the filler is at least one filler selected from the group consisting of carbon black and silica.

4. (Cancelled)
5. (Currently Amended) A method for producing a polymer composition as claimed in claim 1, wherein the polymer composition mixture before drying has a viscosity at 25°C of 3000 2000 mPa·s or less.
6. (Previously Presented) A method for producing a polymer composition as claimed in claim 1, wherein a frequency of the pulse combustion is 50 to 1200 Hz and a temperature of a drying chamber of the atmosphere of the shock wave generated from pulse combustion for spraying the liquid containing a polymer composition is 140°C or less.
7. (Withdrawn) A polymer composition produced by the method according to claim 1.
8. (Previously Presented) A method for producing a natural rubber/carbon black master batch comprising mixing, into a natural rubber latex, an aqueous slurry of carbon black containing 1 to 200 parts by weight of carbon black, based upon 100 parts by weight, in terms of a solid, of the rubber and 1 to 30 wt% of a surfactant based upon the weight of the carbon black, in terms of solid content, then spraying and drying the mixture thus obtained under an atmosphere of a shock wave generated from pulse combustion.
9. (Original) A method for producing a master batch as claimed in claim 8, wherein the surfactant is mixed, in advance with at least one of natural rubber latex and aqueous slurry of carbon black, followed by agitating and mixing the natural rubber latex and the carbon black slurry.
10. (Previously Presented) A method for producing a master batch as claimed in claim 8, wherein the surfactant is a nonionic surfactant or cationic surfactant.
11. (Original) A method as claimed in claim 10, wherein a viscosity at 25°C of the mixture before drying is 3000 mPa·s or less.

12. (Previously Presented) A method for producing a master batch as claimed in any claim 8, wherein a frequency of the pulse combustion is 50 to 1200 Hz and a temperature of a drying chamber under the atmosphere of the shock wave generated from pulse combustion for spraying the latex is 140°C or less.

13. (Previously Presented) A method for producing a master batch as claimed in claim 8, wherein the mixture further contains at least one compounding agent selected from the group consisting of vulcanizing agents, vulcanization accelerators, antioxidants, metal oxides, fatty acids, resins and oils.

14. (Withdrawn) A master batch produced by a method according to claim 8.

15. (Original) A method for producing a natural rubber/carbon black master batch comprising mixing, into a natural rubber latex, an aqueous slurry of carbon black and a water-soluble polymer, then spraying and drying the mixture thus obtained under an atmosphere of a shock wave generated from pulse combustion.

16. (Original) A method for producing a master batch as claimed in claim 15, further comprising mixing, into at least one natural rubber latex and the aqueous slurry of carbon black, the water-soluble polymer, and then agitating and mixing the latex and carbon black slurry.

17. (Previously Presented) A method for producing a master batch as claimed in claim 15, wherein the water-soluble polymer is polyvinyl alcohol (PVA), a water-soluble cellulose derivative or a salt thereof.

18. (Original) A method for producing a master batch as claimed in claim 17, wherein an etherification degree of the water-soluble cellulose derivative is 0.5 to 1.6.

19. (Previously Presented) A method for producing a master batch as claimed in claim 17, wherein a viscosity at 25°C of the mixture is 3000 mP·s or less.

20. (Previously Presented) A method for producing a master batch as claimed in claim 15, wherein a frequency of the pulse combustion is 50 to 1200 Hz and a temperature of a drying chamber for spraying the latex is 140°C or less.

21. (Previously Presented) A method for producing a master batch as claimed in claim 15, wherein the mixture further contain at least one compounding agent selected from the group consisting of vulcanizing agents, vulcanization accelerators, antioxidants, metal oxides, fatty acids, resins and oils.

22. (Withdrawn) A master batch produced by a method according to claim 15.

23. (Original) A method for producing a natural rubber/carbon black master batch by mixing a natural rubber latex and an aqueous slurry of carbon black, followed by drying, comprising separately feeding the natural rubber latex and the carbon black slurry from at least two starting material feed lines, which is combined into a single line, and then spraying and drying the mixture under an atmosphere of a shock wave generated from pulse combustion.

24. (Original) A method for producing a master batch as claimed in claim 23, wherein a time after combining the starting material feed lines to a single line, then spraying the mixture under an atmosphere of a shock wave generated from pulse combustion is 0.1 to 10 seconds.

25. (Previously Presented) A method for producing a master batch as claimed in claim 23, wherein viscosities at 25°C of the natural rubber latex and the aqueous slurry of carbon black are 3000 mP·s or less, respectively.

26. (Previously Presented) A method for producing a master batch as claimed in claim 23, wherein a frequency of the pulse combustion is 50 to 1200 Hz and a temperature of a drying chamber for spraying the latex is 140°C or less.

27. (Withdrawn) A master batch produced by a method according to claim 23.

28. (Withdrawn) An apparatus for mixing and drying at least two starting liquid or dispersion of solid substances, comprising pumps for feeding at least two starting liquids, a control mechanism for controlling a feed ratio of the pumps, at least two starting liquid feed lines for feeding at least two starting liquids at any ratio, and a pulse combustion apparatus for spraying, after combining the at least two starting liquid feed lines into the single feed line, the combined liquids and drying the mixture under an atmosphere of a shock wave generated from pulse combustion.

29. (Withdrawn) A drying apparatus as claimed in claim 28, wherein said at least two starting liquids are a natural rubber latex and an aqueous slurry of carbon black.